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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,983	08/07/2001	Luo Steven	P01018US1A	3562

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EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 04/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/923,983

Applicant(s)

STEVEN ET AL.

Examiner

Rip A. Lee

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-10,12-19,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) 6-10 and 12-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1,2,4-10,12-19,21 and 22 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This office action follows a response filed on February 12, 2003. Claims 1, 2, 6, 8, 9, 10, 12, 13, 16-19, 21, and 22 were amended, and claims 3, 11, 20, and 23 were canceled. Applicants have also furnished a declaration under 37 C.F.R. § 1.132.

Election/Restrictions

1. Applicant's election with traverse of claims 1-5 in Paper No. 4 is acknowledged. The traversal is on the ground(s) that search for the method of group II and group III will not be unduly burdensome. This is not found persuasive. As elucidated in Paper No. 3, restriction is proper because of the four reasons outlined in paragraphs 2-7 of the office action.

The requirement as currently pertains to claims 1-5 and amended claims 21 and 22 is still deemed proper and is therefore made FINAL.

2. This application contains claims 6-10 and 12-19 drawn to inventions nonelected with traverse in Paper No. 4. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Art Unit: 1713

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, 4, 5, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,935,160 to Kline in view of U.S. Patent No. 6,117,956 to Luo.

Kline discloses use of dialkylaminomethyl phenols for preventing oxidative degradation of stereoregular diene polymers without concomitant discoloration (claim 1). Specific examples of the antioxidant include 2,6-di-*t*-butyl-4-dimethylaminomethylphenol and 2,6-di-*t*-butyl-4-piperidinomethylphenol (col. 2, lines 17 and 21). A practical amount of 1 part by weight of the phenolic compound per 100 parts of polymer is used (see Examples). The inventors state that not all polymers will benefit by the practice of the present invention (*i.e.*, polybutadiene prepared with a lithium catalyst), but only those containing the residue of transition metal catalyst will

Art Unit: 1713

benefit (col. 3, lines 39-42). Various examples of polymer are described, but the reference does not suggest use of the inventive phenolic compounds with syndiotactic 1,2-polybutadiene.

Syndiotactic 1,2-polybutadiene, as disclosed in Luo, is prepared in the presence of a chromium catalyst. Although no specific steps regarding treatment of catalyst residue is mentioned, there is no reason to expect the resulting polymer to be completely devoid of catalyst residue. In fact, such a problem is well appreciated by those having skill in the art. Therefore, one having skill in the art, having read both references, would have found it obvious to use the compounds taught by Kline to prevent oxidative degradation arising from transition metal residue in syndiotactic 1,2-polybutadiene. Based on the teachings in the prior art, and absent any teaching discouraging the skilled artisan from doing so, one would have expected this practice to work successfully. *In re O'Farrell*, 7 USPQ 2d 1673 (Fed. Cir. 1988).

Response to Arguments

6. The Applicants traverse the rejection of claims 1, 2, 4, 5, 21, and 22 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,935,160 to Kline. The rejection has been overcome by amendment.

7. The Applicants traverse the rejection of claim 3 (the subject matter of which is now incorporated into amended claims) under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,935,160 to Kline in view of U.S. Patent No. 6,117,956 to Luo. The Applicant's arguments have been considered fully, but they are not persuasive. The following points were expressed:

(i) Kline teaches a combination of dialkylaminomethyl phenol and hindered phenolic or *bisphenolic* antioxidant, and omission of one of the components results in lower resistance to oxidative degradation. Furthermore, many of the dialkylaminomethyl compounds are not very effective as antioxidants. Therefore, one would not be inclined to use any of the dialkylaminomethyl compounds taught in Kline within compositions containing the syndiotactic 1,2-polybutadiene of Luo.

Applicant's arrival at the conclusion based on the first two statements is unclear. The present claims are drawn to a composition comprising syndiotactic polybutadiene and dialkylaminomethyl phenol compound. Whether the latter is called a deactivator, an antioxidant, or a stabilizer is a matter of nomenclature because the Applicant is entitled to be his/her own lexicographer. The fact that Kline teaches the compound presently claimed is irrefutable. Furthermore, the term "comprising" does not exclude any unrecited components. As such, the prior art composition may contain other elements (*i.e.*, hindered phenolic or *bisphenolic* antioxidants) and still meet the subject matter of the present claims. Therefore, it is maintained that the skilled artisan would find it obvious to use dialkylaminomethyl phenol compounds alone, or dialkylaminomethyl phenol compounds in conjunction with hindered phenolic or *bisphenolic* antioxidants (as per Kline) in the compositions of Luo.

(ii) Whereas the present claims require a compound containing only one dialkylaminomethyl group in the *para* position, Kline suggests that preferred results are achieved with phenolic compounds containing two or three dialkylaminomethyl groups occupying at least one *ortho*-position. Accordingly, the Applicants do not believe that one would be motivated to practice the

Art Unit: 1713

claimed invention having full knowledge of Kline and extending those teachings to Luo. Applicants have submitted a declaration supporting their position.

While it is true that preferred compounds contain two or three dialkylaminomethyl groups, this does not detract from the fact that Kline teaches use of the *class* of DAAMP compounds represented by the general formula shown in claim 1. One can expect that all compounds conforming to said formula are applicable as catalyst deactivators, and therefore, one would be motivated to use any of them. In fact, 2,6-di-*t*-butyl-4-dimethylaminomethylphenol and 2,6-di-*t*-butyl-4-piperidinomethylphenol are listed as compounds that illustrate the class of DAAMP compounds. As such, there is nothing in Kline that discourages the skilled artisan from using these particular compounds and extending their use to the teachings of Luo.

(iii) Based on these facts, the Applicants do not believe that the Examiner has established a *prima facie* case of obviousness.

A *prima facie* case of obviousness has been established in the previous office action. Proceeding further, a *prima facie* case of obviousness was established properly according to the three guidelines set forth in MPEP 2142: (1) Motivation exists to combine references because Kline indicates that dialkylaminomethyl phenol compounds work in polymers that are derived from conjugated diene olefins and which contain the residue of transition metal catalyst. Luo illustrates such a polymer; (2) therefore, the skilled artisan would expect use of dialkylaminomethyl phenol to work successfully as a catalyst deactivator in the polymer of Luo; (3) as such, the overall composition would meet the limitations of the present claims.

Art Unit: 1713

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

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April 15, 2003



DAVID W. WU
SUPERVISORY PATENT EXAMINER
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